IN THE SPECIFICATION

Please delete header at the top of each page.

Please amend the paragraph beginning at page 1, line 13, as follows:

Background~~Description of the Prior Art~~

Speech recognition systems can be used to enter data and information in order to control different kinds of electronic devices~~apparatuses~~. Despite some limitations, speech recognition has a number of applications, for example mobile phones can be provided with automatic speech recognition functionalities, in ~~particular so called~~ automatic voice answering (AVA) functions.

Please amend the paragraph beginning at page 2, line 6, as follows:

AVA functions based on energy detectors are restrained to accept only one command as mentioned above. It is not convenient to provide several commands when the AVA functions are based on energy detectors, because it is very likely that the AVA functions of the phone will respond~~se~~ to sounds like the ring signal surrounding the phone.

Please amend the paragraph beginning at page 2, line 32, as follows:

The adaptive filter can be interpreted as an adaptive notch filter, where~~in~~ the location of the notches ~~are~~ is updated continuously in a way that only disturbed frequencies are attenuated. As a result, higher recognition rates are achieved by using this method. However, such an adaptive algorithm requires many ~~needs a lot of~~ calculations. Further, they do not adapt instantaneously, and a trade off between stability and ~~the~~ convergence time for the adaptation ~~have to~~ must be performed.

Please amend the paragraph beginning at page 3, line 16, as follows:

During the masking operations noise marks are associated with the masked input spectrum and template spectrum, respectively, whether the value arose from noise–or speech and taken into account during spectral distance calculations on the spectra.

Please amend the paragraph beginning at page 3, line 25, as follows:

Hence, since the spectral distance processor according to GB-A-2 137 791 is intended to operate in fluctutating or high noise level conditions which is ~~that's~~ the reason for the complex design.

Please amend the paragraph beginning at page 3, line 29, as follows:

However, speech recognition in a mobile phone where the user can give speech commands to control the phone as described above, a complex spectral distance processor as disclosed by GB-A-2 137 791 is not necessary, because the present noise doese not fluctuate and does not have~~has no~~ such high levels.

Please amend the paragraph beginning at page 4, line 1, as follows:

Summary ~~of the Invention~~

Therefore, it is an object of the present invention to provide an improved spectral distance calculator usable in any speech recognition using spectral difference as a dissimilarity measure, which is particularly suitable in low noise level conditions.

Please amend the paragraph beginning at page 5, line 15, as follows:

Detailed Description ~~of the Invention~~

One example embodiment of a spectral distance calculator ~~according to the invention~~ comprises spectral distance calculation means for performing spectral distance calculations in order to compare an input spectrum due to noise and a reference spectrum. In order to deal with the interfering noise, the distance calculator further comprises masking means in order to mask the spectral distance between the input spectrum and the

B9 reference spectrum with respect to a known or pre-defined noise, stored in a memory means.

Please amend the paragraph beginning at page 6, line 9, as follows:

B10 The digitized version of the sound is matched against a set of templates or reference signals pre-stored in a system memory~~storage~~. A template or reference signal is denoted by r(n) and a corresponding spectral representation of the template signal is denoted by $R_n(f)$. The known noise signal in the input is denoted by x(n) and the corresponding spectral representation is denoted by $X_n(f)$.

Please amend the paragraph beginning at page 6, line 21, as follows:

B11 Thus, the input signal spectrum $S_n(f)$ is matched against similarly formed reference signals $R_n(f)$ among the stored reference signals in the electronic storage. This matching procedure is performed by selecting the reference signal which minimizes the complete spectral distance, i.e ~~is~~ minimize~~sing~~ the following expression:

Please amend the paragraph beginning at page 7, line ~~19~~ 17, as follows:

B12 According to ~~F~~fig. 1, the input signal for a comparison is exposed to a known noise in the spectrum between the two frequencies f_a and f_b. The corresponding reference signal $R_n(f)$ for comparison with the input signal is not considered to be due to any noise. Hence, in order to get a thorough comparison between the input signal and the reference signal or their spectra, the input signal has to be masked in any way to compensate for the known noise. According to the invention, the spectral distance calculation or measure of the dissimilarity is modified by a weight A_i according to the following expression:

Please amend the paragraph beginning at page 8, line ~~6~~ 4, as follows:

B13 In one example embodiment of the spectral distance calculator, ~~according to the invention~~ it is included in a speech recognition system for comparison of an input

B13

spectrum and a reference spectrum.~~, comprising selecting means for selecting a~~ A reference spectrum is selected that minimize~~sing~~ a complete spectral distance between the input spectra and the reference spectra.

Please amend the paragraph beginning at page 8, line ~~13~~ 11, as follows:

B14

Further, the speech recognition system is included in a mobile phone providing AVA functions, such as "accept the call" if a user of the phone would like to answer the call, ~~or~~ "reject the call" if he doesn't want to answer the call, or "forward" if the incoming call should be connected to a voice mail or another phone number.

Please amend the paragraph beginning at page 8, line ~~19~~ 17, as follows:

B15

Although the invention has been described by way of a specific example embodiment ~~thereof~~, ~~it should be apparent that~~ the present invention provides a weighted spectral distance calculator that fully satisfies the aims and advantages set forth above.~~,~~ ~~and~~ Aalternatives, modifications, and variations are apparent to those skilled in the art.

Please amend the paragraph beginning at pages 8 , line ~~26~~ 24, as follows:

B16

For example, in another embodiment ~~of the invention~~, the calculator is provided with an adaptive notch filter which not only filters the input signal but also the reference signal. ~~This solution benefits from the effect that a more reliable selection of the reference signal is obtained because t~~ The calculation will be more accurate if a filtered input signal is compared to a filtered reference signal. Further, this solution does not require any adaptive algorithms. Since ~~and~~ there is no additional computational loading, this embodiment~~it~~ works instantaneously ~~and it lacks~~ without stability problems. However, the automatic voice answering means requires continuous~~ly~~ knowledge of the disturbed frequencies.

Please amend the paragraph beginning at page 9, line 4, as follows:

B7

In an alternative further example embodiments ~~of the second embodiment~~, more sophisticated weights ~~are provided by~~ using real valued A_i, allow~~ing~~ different levels of suppression depending on how much the specific frequencies f_i are disturbed.